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ABSTRACT

This report discusses the outcomes of a study that investigated the relationship between student scores on the five sub-scales of the School Attitude Assessment Survey-Revised (SAAS-R) and the academic achievement of known groups of gifted achievers and gifted underachievers. The study examined whether gifted achievers and gifted underachievers differ in their attitudes toward school, attitudes toward teachers, goal-valuation, motivation, and general academic self-perceptions. An additional goal of this study was to attempt to predict the students' group membership as either gifted achievers or gifted underachievers with at least 80 percent accuracy using logistic regression techniques. The sample included 122 gifted achievers and 56 gifted underachievers from 28 high schools nationwide. The study proved the mean differences between the gifted achievers' and gifted underachievers' attitudes toward teachers, attitudes toward school, goal-valuation, and motivation to be statistically significant. The academic self-perception factor, however, was not statistically significant in the study. The effect sizes for these differences ranged from d=.46 (for the academic self-perception factor) to d=1.37 (for the motivation factor). Using logistic regression analyses techniques, the researchers were able to conclude that 81.8 percent of the students in the study sample were accurately classified as either gifted achievers or gifted underachievers in respect to the goal-valuation and motivation factors. (Contains 39 references and 3 tables.) (CR)

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Why try? Factors that differentiate underachieving gifted students from high achieving gifted students

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Abstract

The underachievement of academically gifted students continues to frustrate parents, teachers, and counselors. We have yet to answer several very basic questions about gifted underachievers: Do they share any common behavioral or personality characteristics? How do gifted underachievers differ from gifted achievers? Can we predict which students are at the greatest risk for underachievement? The present study investigates the relationship between student scores on the five sub-scales of the School Attitude Assessment Survey- Revised (SAAS-R) (McCoach, 2000) and the academic achievement of known groups of gifted achievers and underachievers. The purpose of this study was to examine whether gifted achievers and gifted underachievers differ in their attitudes toward school, attitudes toward teachers, goal-valuation, motivation, and general academic self-perceptions. An additional goal of this study was to attempt to predict the students' group membership as either gifted achievers or gifted underachievers with at least 80% accuracy using logistic regression techniques. The sample contained 56 gifted underachievers and 122 gifted achievers from 28 high schools nationwide. The mean differences between gifted achievers, and gifted underachievers' attitudes toward teachers, attitudes toward school, goal valuation, and motivation/self-regulation were all statistically significant ($p<.001$). The academic self-perceptions factor was not statistically significant ($p>.01$). The effect sizes for these differences ranged from $d = .46$ (for the academic self-perceptions to $d = 1.37$ (for the motivation/self-regulation factor). Using logistic regression analyses techniques we correctly classified 81.8 % of the sample as either gifted achievers or gifted underachievers with the goal valuation and motivation/self-regulation factors. This study represents an important step toward quantifying factors related to the underachievement of gifted adolescents.

Introduction

The underachievement of academically gifted students continues to frustrate parents, teachers, and counselors. Many articles and books have been devoted to the topic. Unfortunately, despite widespread interest, we possess a very rudimentary understanding of this phenomenon. We have yet to answer several very basic questions about gifted underachievers: Do they share any common behavioral or personality characteristics? How do gifted underachievers differ from gifted achievers? What causes some gifted students to underachieve in school? Can we predict which students are at the greatest risk for underachievement? It is our goal to begin to answer these very important questions.

The most common definition characterizes underachievement as a discrepancy between potential (or ability) and performance (or achievement) (Dowdall & Colangelo, 1982;Whitmore, 1980). For the purposes of this study, we have chosen the following definition of gifted underachievers: "Underachievers are students who exhibit a severe discrepancy between expected achievement (as measured by standardized achievement test scores or cognitive or intellectual ability assessments) and actual achievement (as measured class grades and teacher evaluations). To be classified as an underachiever, the discrepancy between expected and actual achievement must not be the direct result of a diagnosed learning disability... Gifted underachievers are underachievers who exhibit superior scores on measures of expected achievement (i.e.- standardized achievement test scores or cognitive or intellectual ability assessments)" (Reis & McCoach, 2000, p. 157).

Researchers have attempted to isolate the psychological factors that appear to be correlated with underachievement. Although lists and descriptions of "common personality traits" of underachievers abound, the utility of such lists is questionable. Most of the research that investigates common characteristics of underachieving students has employed qualitative, clinical, or single subject research methodology. Very few quantitative studies have examined the legitimacy of these hypotheses. Characteristics commonly associated with underachievement include low self-concept, low self-motivation, low goal-valuation, negative attitude toward school, and negative attitudes toward teachers (Reis & McCoach, 2000).

The present study investigates the relationship between student scores on the five sub-scales of the School Attitude Assessment Survey- Revised (SAAS-R) (McCoach, 2000) and the academic achievement of known groups of gifted achievers and underachievers. The purpose of this study was to examine whether gifted achievers and gifted underachievers differ in their attitudes toward school, attitudes toward teachers, goal-valuation, motivation, and general academic self-perceptions. An additional goal of this study was to attempt to predict the students' group membership as either gifted achievers or gifted underachievers with at least 80% accuracy using logistic regression techniques.

Review of the Literature

Academic Self-Perceptions

Students develop confidence in many ways, and those who are confident about their skills are more likely to engage in a variety of activities. The perceptions students have about their skills influence the types of activities they select, how much they challenge themselves at those activities, and the persistence they exhibit once they are involved in the activities (Ames, 1990; Bandura, 1977, 1986; Schunk, 1981, 1984). Perceptions or personal expectancies generally fall

into two categories: self–efficacy and self-concept. Underachievers often exhibit low self-concept or low self-efficacy (Bruns, 1992; Diaz, 1998; Dowdall & Colangelo, 1982; Ford, 1996; Supplee, 1990; Whitmore, 1980).

Self-efficacy is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p. 391). Academic self-efficacy is a significant predictor of academic motivation and academic achievement (Schunk, 1991). Students acquire information to appraise their self-efficacy from their previous accomplishments and experiences, vicarious experiences, physiological reactions, and persuasion from others (Schunk, 1984). Success generally increases self-efficacy, and failure, especially failure early in a domain of endeavor is likely to decrease self-efficacy (Schunk, 1984). Students often acquire efficacy information by comparing their performance with those of their classmates (Schunk, 1984). In addition, students utilize perceptions of their ability, task difficulty, and amount of effort expended to assess their self-efficacy in a particular task or domain (Schunk, 1989).

Academic self-concept involves a description and an evaluation of one's perceived academic abilities (Byrne, 1996). Academic self-concept encompasses more global beliefs of self-worth associated with one's perceived academic competence, whereas perceived self-efficacy denotes very specific skills (Byrne, 1996). Academic self-concept is a multidimensional construct, and involves both internal and external comparisons. "Students typically make such judgments by comparing their own performance with that of their classmates (an external comparison), as well as with their own performance in other subjects (an internal comparison); these dual comparative processes represent frame-of-reference effects" (Byrne, 1996). Academic self-concept is a significant predictor of academic achievement (Lyon, 1993; Wigfield & Karpathian, 1991). Research suggests that as much as one third of the variance in achievement can be accounted for by academic self-concept alone (Lyon, 1993). The correlation of positive self-concept with student achievement raises an interesting but unanswered question. Does low academic self-concept cause underachievement, does underachievement result in a deterioration of academic self-concept, or does a third factor exert a negative influence on both academic self-concept and scholastic achievement? Future longitudinal studies of achievers and underachievers and the development of structural equation models of achievement and underachievement may help clarify the direction of causality between these two variables.

The academic self-perceptions factor of the SAAS-R measures students' perceptions of their scholastic abilities. The statements on this factor represent tap both general academic self-efficacy and academic self-concept. In keeping with Harter's (1985) conception of academic self-perceptions, the self-perception factor is a cognitive, self-evaluative appraisal of the student's scholastic ability, rather than an assessment of self-esteem (Pintrich & Schunk, 1996). The academic self-perceptions factor of the SAAS-R represents a mixture of questions that span both academic self concept and academic self-efficacy.

Attitude Toward School

Attitudes toward school consist of the students' self-reported interest in and affect toward school. Previous research suggests that underachievers appear to display negative attitudes toward school (Bruns, 1992; Diaz, 1998; Ford, 1996; Frankel, 1965; Mandel & Marcus, 1988; McCall Evahn, & Kratzer, 1992; Rimm, 1995). "Research findings over many years have consistently indicated that young people who do well in school tend to be interested in learning" (Weiner, 1992, p. 260). Underachievers exhibit more negative attitudes toward school than

average and high achievers do (Mandel & Marcus, 1988). Majoribanks (1992) found that children's cognitive attitudes toward school demonstrated moderate, statistically significant associations with achievement. Interestingly, in his study, affective attitudes toward school and achievement were correlated for girls, but not for boys. As with academic self-concept, although there appears to be a relationship between attitude toward school and achievement, this relationship does not suggest or determine any flow of causality between the two variables.

Attitude Toward Teachers and Classes

Because it is difficult to separate the confounding effects of attitudes toward teachers and attitudes toward the classes they teach, the attitude toward teachers factor of the SAAS-R encompasses students' interest and positive affect toward their teachers and their classes. Students' interest in their coursework is related to their use of self-regulatory strategies as well as their motivation (Scheifele, 1991; Wigfield, 1994) and their academic achievement. Many underachievers exhibit problems with authority, including problems with teachers and school personnel (Mandel & Marcus, 1988; McCall et al., 1992), and they may exhibit hostility toward authority figures, including teachers (Mandel & Marcus, 1988). Therefore, students' attitudes toward their teachers and courses should be positively related to their academic achievement.

Motivation and Self-Regulation

The relationship between motivation and academic achievement is complex. However, self-regulation may hold the key to understanding student achievement. Self-regulation refers to students' "self-generated thoughts, feelings, and actions which are systematically oriented toward the attainment of goals" (Zimmerman, 1994, p. ix). Self-regulation comprises processes by which people are metacognitively, motivationally, and behaviorally active participants in their own learning (Zimmerman, 1994). Self-regulation is a significant predictor of academic achievement, and the use of internalized self-regulatory strategies help individuals to achieve in school. However, whether students' self-regulation and motivation can be manipulated through educational interventions is less clearly documented.

After reviewing the literature in underachievement, Krouse and Krouse (1981) concluded that "self-control is an important factor in academic performance. Deficits in self-control can play a strong and consistent role in contributing to academic underachievement" (p. 155). Unfortunately, disentangling the constructs of motivation and self-regulation has proven challenging. Underachievers may lack motivation, self-regulation skills, or a combination of the two traits. "Underachievers may not lack knowledge of strategies, but rather they may not understand that strategic behavior in conjunction with effort results in achievement" (Borkowski & Thorpe, 1994). The motivation/self-regulation factor of the SAAS-R measures students' self-reported effort and use of self-regulatory strategies. Research suggests that self-efficacy and self-regulation are positively related (Schunk, 1998; Zimmerman, 1994).

Goal Valuation

"Children's achievement values are a crucial motivational mediator of their self-regulation. When students value a task, they will be more likely to engage in it, expend more effort on it, and do better on it" (Wigfield, 1994, p. 102). Valuing learning, and believing in the importance of the task increases students' achievement orientation and motivation. When students value the goals associated with school, they are more likely to be achievers. Intrinsic value consists of the enjoyment that a task brings. The effect of valuing goals may be mediated through self-

regulatory strategies (Wigfield, 1994). "Achievement values include whether an individual likes a task, the importance the individual attaches to a task, and the potential usefulness of the task" (Wigfield & Karpathian, 1991, p. 236). The goal valuation factor measures the importance that a student attaches to scholastic achievement.

Instrumentation

The School Attitude Assessment Survey-R (McCoach, 2000) employed a 7-point Likert type agreement scale to measure five factors hypothesized to relate to underachievement. The five factors were academic self-perceptions, attitudes toward school, attitudes toward teachers, goal valuation, and motivation. A previous study (McCoach, 2000) provided evidence of the construct validity and reliability of the instrument for research purposes. In this study, as in the validation study, all reliability coefficients for the individual factors were above .85.

Sample

The sample consisted of 178 gifted high school students in grades nine through twelve from 28 school districts from across the nation. For this study, we defined a gifted student as a student who scored at or above the 92nd percentile nationally on a norm-referenced test of achievement taken within the last 4 years. An underachiever was defined as a student who ranked in the bottom half of his/her class and/or who had a grade point average (GPA) at or below 2.5. An achiever was a student who ranked in the top 10% of his/her class and who had a GPA of at least 3.75. According to these criteria, the sample contained 56 gifted underachievers and 122 gifted achievers. While these definitions are not universally accepted, they allowed us to examine two distinct groups of students: those who were, by conventional standards, succeeding in school, and those who were not achieving at a level commensurate with their "expected" abilities. Many of the students in the sample had been identified for gifted programs in elementary school. The sample consisted of 101 males, 72 females, and 5 non-responses. Although the sex ratio of male to female achievers was roughly equal, there were approximately three times as many male underachievers as there were female underachievers in this sample. This is consistent with previous research on gender differences in underachievement (Peterson & Colangelo, 1996; Wolfle, 1991). The sample consisted of 20 freshman, 50 sophomores, 53 juniors, 50 seniors, and 5 students who did not provide their grade level. The majority of the participants in the study identified themselves as white (78%). In addition, 3 % of the participants were Latino, 2% of the participants were African American, 3% of the sample identified themselves as Asian or Pacific Islander, 12% of the participants chose not to respond to the ethnicity question, and 2% self-reported another ethnicity. All students and their parents signed consent forms prior to their inclusion in the study.

Research Questions:

The research questions for the present study were as follows:

1. Are there mean differences between gifted achievers and gifted underachievers on each of the five factors of the SAAS-R (academic self-perceptions, attitudes toward teachers, attitudes toward school, goal valuation, and motivation/self-regulation)?
2. Which set of factors on the SAAS-R best predicts a student's group membership as either a gifted high achiever or a gifted underachiever?

Methodology

The researchers solicited high schools from across the country to participate in the study. A contact person at each of the 28 high schools facilitated the collection of the surveys and student information. A contact person from the school district facilitated the distribution and collection of the informed consent forms. In addition, the contact person provided us with the results of a nationally normed, standardized achievement test scores to verify the student's high potential for academic achievement. In addition, the district contact person provided us with each student's cumulative and semester GPAs and their current class rank. Using this information, we classified participants as either gifted low achievers or gifted high achievers. Students who were in the top 10% of their class or who had at least a 3.75 GPA were placed in the high achiever group. Students who were in the bottom half of their high school class or who had a GPA at or below 2.5 were considered underachievers. We then conducted several statistical analyses to probe the predictive validity of using the mean factor scores on the SAAS-R.

Analyses

Several analyses explored the differences in achievers and underachievers academic self-perceptions, attitudes toward school, attitudes toward teachers, goal valuation, and motivation. First, we conducted a series of five t-tests to compare the means of gifted achievers and gifted underachievers on each of the five factors. To control the Type I error rate, we used a Bonferroni adjustment, setting the alpha at .01. To test for equality of variances between the two groups, we ran a Levene's test. Only the attitudes toward teachers factor demonstrated equal variances between the two groups. Therefore, for all other factors, corrections were applied to correct for the inequality of the variances. In all cases, the gifted underachievers displayed greater variances than the gifted achievers. This suggests that there was greater variability in the responses of the underachievers on the academic self-perceptions, attitudes toward school, goal valuation, and motivation factors. The mean differences between gifted achievers, and gifted underachievers' attitudes toward teachers, attitudes toward school, goal valuation, and motivation/self-regulation were all statistically significant ($p<.001$). The academic self-perceptions factor was not statistically significant ($p>.01$). Both gifted achievers and gifted underachievers exhibited high academic self-perceptions. The mean academic self-perceptions factor score for gifted underachievers was 5.9 while the mean academic self-perceptions factor score for gifted high achievers was 6.2. The largest mean differences between gifted achievers and gifted underachievers occurred on the motivation/self-regulation factor and the goal valuation factors. Table 1 reports the results of this analysis.

Table 1
T-tests on each of the five factors on the SAAS-R

Factors	M (achievers, n=122)	SD	M (underachievers, n=55)	SD	p	d
Academic Self-Perception	6.21	.565	5.86	.946	.011	.46
Attitude Toward Teachers	5.41	.869	4.66	.975	<.001	.81
Attitude Toward School	5.25	1.16	4.22	1.52	.001	.75
Goal Valuation	6.53	.575	5.26	1.41	<.001	1.21
Motivation/Self-Regulation	5.48	.931	3.90	1.40	<.001	1.37

Next, we conducted a series of logistic regression analyses to determine which combination of the five factors would allow us to best predict students' group membership. First, we entered all five variables into the logistic regression analysis. The model with all 5 variables correctly classified 81.8% of the students as either gifted achievers or gifted underachievers. Table 2 reports the results of this analysis. However, because of multicollinearity among the five factors, the Wald test revealed that only two of the five factors, goal valuation, and motivation/self-regulation, were statistically significant predictors of group membership. Academic self-perceptions, attitudes toward school, and attitudes toward teachers were not significant predictors of classification status in the logistic regression model ($p>.10$). Therefore, we reestimated the model with two independent variables: goal valuation, and motivation/self-regulation. The model chi-square (χ^2) was 66.1 with 2 df. The Cox and Snell R^2 was .313. The Negelkerke R^2 was .439, and the Hosmer and Lemeshow goodness of fit index was 6.01 with 8 df ($p=.65$). These results indicate that the two-factor model does a significantly better of classifying students as underachievers or achievers than the null model does. Table 3 reports the results of this analysis.

Table 2
Results of the Logistic Regression with all 5 predictor variables

Predictor Variable	B	SE	Wald	df	Sig	R	Exp (B)
Academic self-perceptions	-.03	.30	.007	1	.93	.00	.98
Attitudes toward teachers	.01	.28	.002	1	.96	.00	1.01
Attitudes toward school	.25	.19	1.75	1	.19	.00	1.29
Goal Valuation	.76	.30	6.23	1	.01	.14	2.13
Motivation/self-regulation	.65	.25	6.53	1	.01	.14	1.91

Table 3
Results of the Logistic regression analysis with 2 predictor variables

Predictor Variable	B	SE	Wald	df	Sig	R	Exp (B)
Goal valuation	.76	.30	6.46	1	.011	.14	2.14
Motivation/Self-regulation	.75	.24	9.96	1	.001	.19	2.11

Using the goal valuation and motivation/self-regulation factors as predictors of achievers and underachievers allowed us to correctly classify 81.8 % of the sample as either gifted achievers or gifted underachievers. We were better able to accurately classify achievers (91.7% correctly classified) than gifted underachievers (60.7% correctly classified). Underachievers were more difficult to classify because their responses were much more varied than those of the gifted achievers. The results of the logistic regression indicate that for every point lower a student scores on the motivation factor, he or she is over 2 times more likely to be an underachiever after controlling for the goal valuation factor. For every point lower a student scores on the goal valuation factor, he or she is over two times more likely to be an underachiever after controlling for the motivation/self-regulation factor.

Discussion

Both gifted achievers and gifted underachievers possess high academic self-perceptions. Much of the literature on underachievement suggests that underachievers have low self-esteem, poor academic self-concepts, or low self-efficacy (Bricklin & Bricklin, 1967; Bruns, 1988; Diaz, 1998; Dowdall & Colangelo, 1982; Fine & Pitts, 1980; Fink, 1965; Ford, 1996; Kanoy, Johnson, & Kanoy, 1980; Supplee, 1990; Whitmore, 1980). The results of this study challenge the notion that gifted underachievers suffer from low academic self-perceptions. However, most of the previous literature utilized either qualitative or case study methodology to explore this issue. Another notable exception, the study of gifted underachievers conducted by Lupart & Pyryt (1996), found that gifted underachievers resembled their average peers on measures of self-esteem. Theirs was also a quantitative study. The contrasting results in the qualitative and quantitative studies suggest that although low academic self-perceptions may be characteristic of some gifted underachievers, it is not characteristic of the majority of underachievers. Most gifted students in both the achieving and underachieving groups had high mean scores on the academic self-perceptions scale. For example, over 50% of the gifted underachievers had means of at least 6.0 on the academic self-perceptions scale, and less than 11% of gifted underachievers had mean scores of less than 5.0. In comparison, almost 62% of gifted high achievers exhibited scores of 6.0 or higher on the academic self-perceptions factor, and less than 4% scored less than 5.0 on the scale. Therefore, although underachieving gifted students were more likely than gifted achievers to report low academic self-perceptions, those with low academic-self-perceptions represented a small minority of the gifted underachievers. Perhaps both gifted underachievers and gifted achievers have high academic self-perceptions because both groups know that they possess the cognitive skills and abilities to be successful in school.

The results of this study suggest that academic self-concept does not efficiently or effectively separate gifted achievers from gifted underachievers. These results stand in stark contrast to previous research in this field, as well as our results for the general population of high school students. In a related study, we examined relationship of the five factors to self-reported GPA with an entire population of high school students. The academic self-perceptions was the factor that most effectively separated students with self-reported high GPAs from those with low self-reported GPAs, and the academic self-perceptions factor was the best predictor of self-reported high school GPA (McCoach, 2001, McCoach & Siegle, 2001). In addition, the academic self-perceptions factor explained 21 % of the variance in self-reported GPA (McCoach & Siegle, 2001). We hypothesize that although underachievers in general tend to exhibit poor academic self-perceptions, gifted underachievers may be less prone to this problem because of

their high intellectual ability. In other words, giftedness acts as a protective factor against the low academic self-perceptions.

Gifted achievers exhibited more positive attitudes toward teachers and more positive attitudes toward school than gifted underachievers. However, the attitudes toward school and attitudes toward teachers factors did not aid significantly in the classification of gifted students as either high achievers or underachievers after controlling for the goal valuation and motivation/self-regulation factors. The attitudes towards school and the attitudes towards teachers factors are moderately correlated with the goal valuation and the motivation/self-regulation factor. This relationship is expected, since students with more positive attitudes towards school and teachers will be more likely to value the goals of school and to put forth effort to achieve those goals. In addition, motivated students are more likely to receive positive feedback from the school and teachers, thereby raising their attitudes toward school and teachers. However, it appears that the predictive power of the attitudes towards school and attitudes towards teachers factors to classify students as either achievers or underachievers is redundant once the goal valuation and motivation/self-regulation factors are entered into the logistic regression equation. Because this data is correlational in nature, it is impossible to ascertain whether students' attitudes towards school and teachers exert influence on goals and motivations, whether students' goals and motivations influence their attitudes towards school and teachers, whether these factors are engaged in a pattern of reciprocal causation, or whether the correlations among these factors are caused by factors that are unaccounted for by the present model.

Gifted achievers and gifted underachievers differed substantially in their motivation and goal valuation mean scores. In addition, the goal valuation and motivation factors are highly correlated with each other, suggesting there is a strong relationship between a students goals and his or her motivation/self-regulation to achieve those goals. The greatest mean difference between gifted achievers and gifted underachievers was in motivation/self-regulation. The mean score of the gifted achievers was over 1.5 points higher than that of the gifted underachievers. In addition, the combination of motivation/self-regulation factor and the goal valuation factors allowed us to correctly classify over 81% of the sample as either gifted high achievers or gifted underachievers. Previous research also indicated that the motivation/self-regulation factor was one of the best predictors of academic achievement, explaining 19% of the variance in self-reported GPA (McCoach & Siegle, 2001). These results suggest that using the goal valuation and motivation self-regulation factors of the SAAS-R may help teachers and counselors to identify gifted students who are at risk of underachieving in secondary school. Furthermore, the results of this study suggest that the key features that distinguish gifted achievers from gifted underachievers are the goals that they set for themselves and the effort they put forth to achieve those goals.

Underachievers had much higher standard deviations than gifted achievers on all five factors. In other words, gifted achievers respond much more similarly to each other than gifted underachievers do. Therefore, gifted achievers appear to be a much more homogeneous group with respect to the five factors than the underachievers. The large amount of variability in the sample of underachievers suggests that gifted underachievers may or may not exhibit depressed mean scores on the factors of the SAAS-R. In addition, we hypothesize that different gifted students may underachieve for a variety of reasons. Therefore, it is possible that gifted underachievers may exhibit low scores on only one or two of the factors of the SAAS-R.

Future Research

Future research should examine whether interventions to reverse underachievement can increase students' motivation/self-regulation, and increasing student motivation translates directly into increased academic achievement. In addition, it would be interesting to contrast the scores of gifted achievers and gifted underachievers to those of non-gifted achievers and non-gifted underachievers to determine whether we find the same relationships and mean differences hold in both gifted and non-gifted populations. Future research should also begin to explore the causal relationships between the five factors of the SAAS-R and academic achievement by collecting longitudinal data on gifted achievers and underachievers as they progress through secondary school.

Finally, future research could use this and other instruments to try to quantitatively document the existence of different subtypes of gifted underachievers. Several authors have posited the existence of several different types of underachievers (Heacox, 1991; Mandel & Marcus, 1988; Reis & McCoach, 2000; Rimm, 1995, Schneider, 1998). There was a great deal of variability in the underachievers mean scores of the five factors. Therefore, future research should examine whether the five factors on the SAAS-R can be used to help classify the underachievers into different categories. Perhaps these classification schemes can be used to develop differential interventions for gifted underachievers.

Conclusions and Educational Implications

This study represents an attempt to quantitatively examine factors related to the underachievement of gifted students. One surprising finding was that both gifted achievers and gifted underachievers exhibit high academic self-perceptions. These results contradict the majority of previous research on underachievement. Gifted achievers and gifted underachievers differed on the attitudes toward school, attitudes toward teachers, goal valuation, and motivation/self-regulation factors of the SAAS-R. Using the goal valuation and motivation/self-regulation subscales of the SAAS-R helped discriminate gifted achievers from gifted underachievers with greater than 81% accuracy, using logistic regression techniques.

This study represents an important step toward quantifying factors related to the underachievement of gifted adolescents. Future research will continue to explore factors that are related to gifted students' academic achievement. Our hope is that by identifying a variety of factors that are related to the achievement and underachievement of gifted students, we will be able to design a variety of interventions to reverse the academic underachievement of many gifted secondary students.

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